Rate Designs for Non-residential EV Charging

ChargePoint, EVgo, Rivian, Tesla
"Joint EV Industry Parties"

Legislation in Action & Joint EV Industry Party Comments

- $70MM in Level 2 & DCFC rebates and/or grants administered by IEPA starting July 2022
- Beneficial electrification plans including:
  - *optional commercial tariffs utilizing alternatives to traditional demand-based rate structures to facilitate charging for light duty, heavy duty, and fleet electric vehicles*
  - Joint EV Industry Party comments filed at ICC on rate design implementation on 11/2021 and in response to NOI in 11/2020

Demand Charges Case Study: New York

Case Study:

- DCFC station in New York
- Taking service under the existing Secondary Large Commercial General Use tariff
- Despite an “energy charge” of 11 cents per kWh, the effective charge to the station (charging account) at this New York location is $2.90/kWh

DETAILS OF CURRENT ENERGY CHARGES
· Secondary, Commercial, Large, General Use

80%	**Delivery & System Charges**		**$ 1,855.94**
	The cost to deliver electricity: includes operation and maintenance of the electric system and certain transition charges of $0.017987/kWh on behalf of the Utility Debt Securitization Authority, the owner of such transition charges.		
	Basic Service : 29 day(s)	@ $ 2.3400 =	67.86
	First 800 KWH	@ $ .0305 =	24.40
	Demand 102.5 KW		1,763.68
4%	**Power Supply Charges**		**$ 87.59**
	The cost of electricity: includes the purchase of fuel (e.g. oil and gas) used to produce electricity and electricity purchased directly.		
	800 KWH @ $ .109486 =		87.59
16%	**Taxes & Other Charges**		**$ 379.07**
	DER Charge 800 KWH @ $ .003617 =		2.89
	Delivery Service Adjustment		40.91
	Revenue Decoupling Adjustment		92.80
	NY State Assessment		5.47
	Revenue-Based PILOTS		2.73
	Suffolk Property Tax Adjustment		49.85
	Sales Tax @ 8.625 %		184.42
100%	**Total Charges**		**$ 2,322.60**

Amount Due	**$ 2,322.60**
Please Pay By	Jul 29, 2021

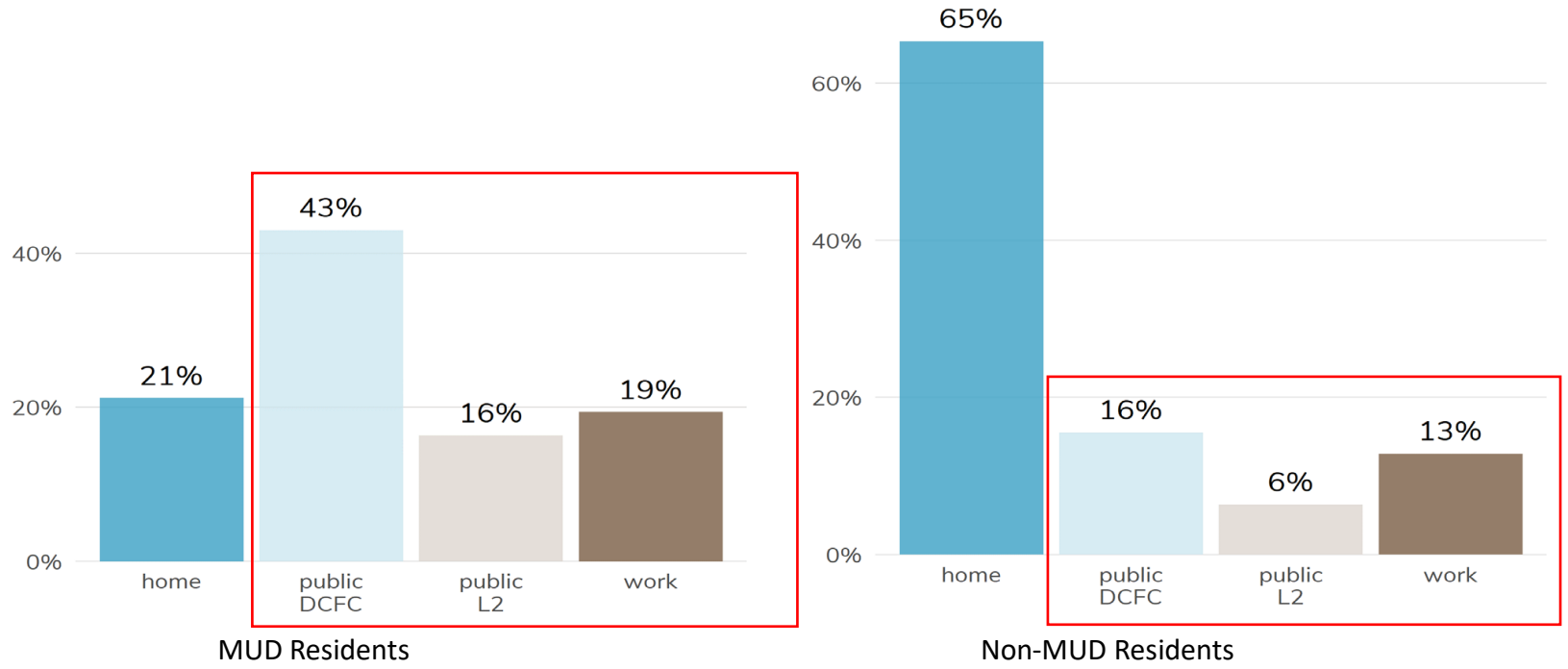
Electric Usage

	Reading
Actual reading on 07/01/2021	00531
Actual reading on 06/02/2021	-00511
Difference	20
Meter Multiplier	x 40
Total electricity used in 29 day(s)	800
Electric Demand (Rounded to nearest .5 kw)	
Actual Reading	48.05
Actual Reading	-45.49
Difference	2.56
Meter Multiplier	x 40
Recorded Demand (KW)	102.5

Energy Rate: $0.109486/kWh
Effective Rate: $2322.60 / 800kWh
$2.9/kWh

Enabling Access for Multifamily Residents

UCLA Luskin Center for Innovation Study found that residents of multifamily housing more likely to charge away from home



Primary Charging Location for MUD and Non-MUD Residents

Rate Design is Critical for MHD Applications

"Xcel Energy new rates for commercial EVs and fleets ***reduced demand charges, which were making electric buses 60% more expensive for RTD to operate than diesel."***

NEWS › COLORADO NEWS

RTD's electric 16th Street Mall buses cost nearly 60% more to operate than diesel coaches

Transit agency says "demand charge" levied by Xcel Energy on electricity costs is to blame

RJ Sangosti, The Denver Post

Electric buses move pedestrians down the the 16th Street Mall in Denver on May 13, 2019. RTD pays nearly twice as much per mile to power its electric buses as it does its conventional diesel fleet. The price disparity could slow the transit agency's embrace of zero-emission technology at a time when air quality and climate change have become ever larger topics of conversation in Colorado.

By **JOHN AGUILAR** | jaguilar@denverpost.com | The Denver Post

PUBLISHED: May 14, 2019 at 11:13 a.m. | UPDATED: May 14, 2019 at 6:11 p.m.

NEWS › TRANSPORTATION

Lower electric rate expected soon for RTD's mall buses, EV fleets in Colorado

A new Xcel rate structure for commercial electric vehicle should become final Tuesday

RJ Sangosti, The Denver Post

Riders board an electric bus along the 16th Street Mall in downtown Denver on May 13, 2019.

By **JOHN AGUILAR** | jaguilar@denverpost.com | The Denver Post

PUBLISHED: October 28, 2019 at 6:00 a.m. | UPDATED: October 28, 2019 at 2:50 p.m.

Rate Design Principles

- Technology agnostic and accessible to all non-residential EV customers, including public charging, large Level 2 installations, and fleet/MHD
- Available to new and existing stations
- Optional
- Provide certainty and stability for long-term investments (e.g. 10-year terms or permanent low load factor rates)
- Consider time-varying rates to best reflect true cost causation
- Cost based
- Limit monthly fixed charges, non-coincident demand, or subscription charges
- Minimize demand charges, maximize volumetric rates
- Encourage early adoption and full lifecycle recovery by adjusting rates to match growing load
- Leverage previous rates designed to industry specific load shapes (e.g. low load factor rates for agriculture, etc.)

Sample EV Charging-Friendly Rates

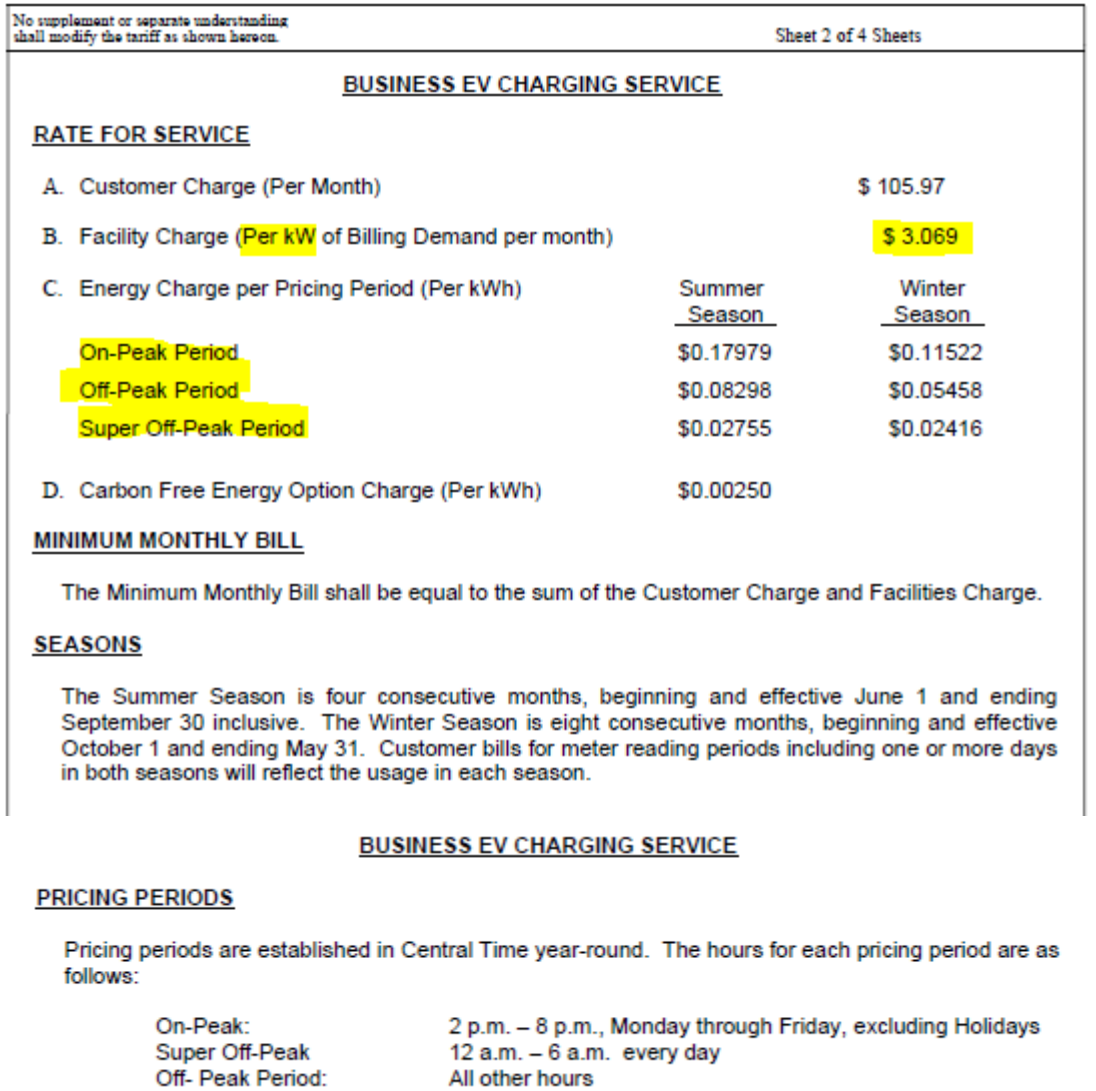
Ameren
Xcel Energy
MGE Madison Gas and Electric
Consumers Energy
AEP Ohio
DTE Energy
evergy
Eversource
PSEG
TEP Tucson Electric Power
Rocky Mountain Power
aps
SDGE
PG&E
Southern California Edison Energy for What's Ahead
LA DWP
NV Energy
FPL
Dominion Energy

Technology Neutral and Commercial EV Rates Both Possible

Utility	Exemplar Rates
Evergy, KS	EV Time-of-Use - Business EV Charging Service (Rate BEVCS)
Eversource, CT	EV Rider – Distribution Charges Converted to Volumetric Rate
APS, AZ	DCFC Rate Rider – 25% Load Factor Demand Cap
Dominion, VA	All-Volumetric Rate below 200kWh per kW (~27% Load Factor)
Madison Gas & Electric, WI	Low Load Factor Rate (50% On-peak Demand Reduction)
DTE Energy, MI	GS-D3 - 1000kW Demand Cap waived through June 1, 2024
Xcel Energy, MN	100 hr Demand Limiter for all Commercial Customers “Rule of 100”

National Best Practice: Evergy

- Low demand charge ~$3/kW of Demand
- Three-period time-of-use (TOU) rate
  - On-Peak, Off-Peak, Super Off-Peak
- 4-month summer season
- 2pm to 8pm Weekday On-Peak, year round
- **Strong** On-Peak price signal
- **Strong** Super Off-Peak price signal
- SIMPLE AND STRAIGHTFORWARD!



No supplement or separate understanding shall modify the tariff as shown hereon. Sheet 2 of 4 Sheets

BUSINESS EV CHARGING SERVICE

RATE FOR SERVICE

		Summer Season	Winter Season
A.	Customer Charge (Per Month)		$ 105.97
B.	Facility Charge (Per kW of Billing Demand per month)		$ 3.069
C.	Energy Charge per Pricing Period (Per kWh)		
	On-Peak Period	$0.17979	$0.11522
	Off-Peak Period	$0.08298	$0.05458
	Super Off-Peak Period	$0.02755	$0.02416
D.	Carbon Free Energy Option Charge (Per kWh)	$0.00250	

MINIMUM MONTHLY BILL

The Minimum Monthly Bill shall be equal to the sum of the Customer Charge and Facilities Charge.

SEASONS

The Summer Season is four consecutive months, beginning and effective June 1 and ending September 30 inclusive. The Winter Season is eight consecutive months, beginning and effective October 1 and ending May 31. Customer bills for meter reading periods including one or more days in both seasons will reflect the usage in each season.

BUSINESS EV CHARGING SERVICE

PRICING PERIODS

Pricing periods are established in Central Time year-round. The hours for each pricing period are as follows:

On-Peak:	2 p.m. – 8 p.m., Monday through Friday, excluding Holidays
Super Off-Peak	12 a.m. – 6 a.m. every day
Off- Peak Period:	All other hours

National Best Practice: Eversource CT

Eversource Connecticut's Electric Vehicle Rate Rider:

- *IF "a rate component of such schedule is priced on a demand basis (i.e., per kW or per kVA), the EV customer under this Rider will be subject to a charge determined on an equivalent per kWh basis using the corresponding average price of such rate component."*
- EV Rate Rider converts rate components billed on a demand basis to a customer average kWh value
  - Based on what an average customer would pay per kWh for these demand components – effectively converts demand components to ALL-VOLUMETRIC kWh basis at the commercial customer class avg load factor.
- Applies the customer average kWh value to the EV charging customer.

National Best Practice: APS Rate Rider DCFC

- Similar to Ameren's Rider EVCP
- Limits Billing Demand based on declining Load Factor conversion over 10 years.
- Starts at 25% Load Factor Limit
- Equivalent to 182.5 hour "demand limiter"
- A customer who uses 18,250 kWh per month would pay NO MORE THAN 18,250 kWh / 182.5 hr = 100 kW billed demand
- A customer who uses 36,500 kWh per month would pay NO MORE THAN 36,500 kWh / 182.5 hr = 200 kW billed demand

LOAD FACTOR LIMITS

Monthly billing demands are limited to a kW no higher than that which would result in the applicable load factor limit, based on the customer's kWh usage, and billing days during the month. The monthly load factor limits are:

	Monthly Cycle Bills beginning with cycle 1 Between	Load Factor Limit
Period One	July 1, 2021 through June 30, 2025	25%
Period Two	July 1, 2025 through June 30, 2028	20%
Period Three	July 1, 2028 through June 30, 2031	15%

The monthly billing demand shall be the lower of:

1. The Billing Demand metered and calculated according to the parent rate schedule, or
2. The Limited Demand which equals:
   a. Period One - (Monthly Billed kWh) / [25%*Days*24 hours]
   b. Period Two - (Monthly Billed kWh) / [20%*Days*24 hours]
   c. Period Three - (Monthly Billed kWh) / [15%*Days*24 hours]

Questions?